UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,231	10/12/2004	Andreas Schuppert	100717-574	9226

27386 7590 10/03/2006	EXAMINER
NORRIS, MCLAUGHLIN & MARCUS, P.A.	KENNEDY, ADRIAN L

875 THIRD AVE 18TH FLOOR NEW YORK, NY 10022	ART UNIT	PAPER NUMBER
	2121	

DATE MAILED: 10/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/511,231	SCHUPPERT ET AL.
	Examiner	Art Unit	
	Adrian L. Kennedy	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2004*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22-43* is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *22-43* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *12 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☒ All   b)☐ Some * c)☐ None of:
      1.☒ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date <u>10/12/04, 10/11/05</u>.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____ .

Examiner's Detailed Office Action

1.   This Office Action is responsive to application **10/511,231**, filed **October 12, 2004**.

.2.   **Claims 1-21** have been canceled.

3.   **Claims 22-43** have been examined.

Information Disclosure Statement

4.   Applicant is respectfully reminded of the ongoing Duty to disclose 37 C.F.R. 1.56 all

pertinent information and material pertaining to the patentability of applicant's claimed

invention, by continuing to submit in a timely manner PTO-1449, Information Disclosure

Statement (IDS) with the filing of applicant's application or thereafter.

Claim Rejections - 35 USC § 101

5.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
requirements of this title.

6.   Claims 22-43 are rejected under 35 U.S.C 101 as being directed to nonstatutory subject

matter. In particular claims 22-35 are considered to be directed to a method and claims

36-43 are considered to be directed to an apparatus, all in accordance with "The Interim

Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility",

Annex IV (a). It should be noted that the Guidelines provide a framework for the

rejection, but it is the case law cited therein that provides the legal authority for this

rejection.

Claims 22-43 do not set forth a "useful, concrete and tangible result". In particular, it is

not considered that these claims set forth a tangible result. Claims 22-43 do not produce

a practical real world result. Claims 22-23 appear to be nothing more than an abstract

algorithm which is not statutory. In particular, claims36-43 appear to be software which

is not patent eligible subject matter.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

8.   Claims 22-43 are rejected under 35 U.S.C. 102(e) as being anticipated by *Wang et al.*

(USPN 6,996,550).

Regarding claim 22:

Wang et al. teaches

A method for designing experiments (C 1, L 21-22; *"methods and apparatus for*

designing and preparing experiments") comprising the steps of:

selecting (C 4, L 46-54; *"providing"*) at least a first experiment (C 4, L 54-56;

"set of experiments") from an experimental space (C 4, L 54-56; *"a parameter*

space") using a data-driven optimizer;

receiving experimentally determined experiment data of the first experiment (The

examiner takes the position that the receiving experiment data is inherent in the

process of "providing" in C 4, L 46-54.) ;

evaluating the experimentally determined experiment data of the first experiment

at a meta layer module, wherein the meta layer module (C 6, L 16-18;

"*optimization process*") generates evaluation data (C 6, L 14-16; "*generating a*

plurality of configurations"); and

processing (C 6, L 25-34; "*generating*") the experimentally determined

experiment data of the first experiment at the optimizer, wherein the processing at

the optimizer is influenced by the evaluation data (C 6, L 25-34; "*generating a*

plurality of configurations can include generating a first configuration and

subsequently generating a sequence of second configurations, with each second

configuration being generated by adding a pattern instance to a preceding

configuration in the sequence").

The examiner takes the position that the experiment parameter space, as taught by Wang

et al., is equivalent to the experimental space claimed by applicant.

Regarding claim 23:

Wang et al. teaches

The method further comprising the step of:

selecting at least a second experiment (C 4, L 54-56; *"set of experiments"*) from

the experimental space (C 4, L 54-56; *"a parameter space"*) using the optimizer.

Regarding claim 24:

Wang et al. teaches

The method wherein at least one of the optimizer and the meta layer module changes the

experimental space before the selecting the at least one second experiment step (C 6, L

25-34; *"generating a plurality of configurations can include generating a first*

configuration and subsequently generating a sequence of second configurations, with

each second configuration being generated by adding a pattern instance to a preceding

configuration in the sequence").

The examiner takes the position that the "configurations" serves as both an experimental

spaces and the result of evaluations. The optimization process (C 6, L 16-18;

"optimization process") generates a new experimental space (C 6, L 25-34; *"second*

configurations") after processing (C 6, L 14-16;*"performing an optimization process"*)

previous experimental spaces (C 6, L 25-34; *"preceding configuration"*).

Additionally, the examiner takes the position that the operations performed by the

optimizer and the meta layer module, of applicants' claimed invention are facilitated the

optimization process (C 6, L 16-18; *"optimization process"*) of the invention of Wang et

al.

The applicants' specification discloses that the meta layer module is a method of tuning

the optimizer in Paragraph 0017, whereas the invention of Wang et al. teaches the

optimization process (C 6, L 16-18; *"optimization process"*) making use of target points

(C 6, L 1-3; *"target points"*) and figures of merit (C 5, L 62-65; *"figure of merit"*). The

examiner asserts that by making use of targets points and figures of merit, the

optimization process taught by Wang et al. is self tuning, and therefore anticipates the

meta layer module and the optimizer of applicants' claimed invention.

Regarding claim 25:

Wang et al. teaches

> The method wherein the meta layer module (C 6, L 16-18; *"optimization process"*)
>
> contains at least one of a neural network module, a hybrid model module, a rigorous
>
> model module and a data mining module (C 6, L 25-34).
>
> The examiner takes the position that data mining is inherent in the process of
>
> optimization (C 6, L 25-34).

Regarding claim 26:

Wang et al. teaches

> The method wherein the experimental data is based on experiments from at least one of
>
> active ingredient research, materials research, catalysis research, biotechnology and
>
> optimization of reaction conditions (C 9, L 13-20; *"reaction conditions"*).

Regarding claim 27:

Wang et al. teaches

The method wherein the evaluating at the meta layer module to generate the evaluation

data includes the step of filtering the experiment data (C 10, L 53-61; *"properties the can*

be screened").

Regarding claim 28:

Wang et al. teaches

The method wherein the filtering includes re-evaluating the experiment data (C 32, L

"repeat steps 930 to 955").

Regarding claim 29:

Wang et al. teaches

The method wherein the filtering includes at least one of weighting (C 19, L 13-15;

"weighting") and pre-selecting the experiment data.

Regarding claim 30:

Wang et al. teaches

The method wherein the weighting includes at least one of using a weighting parameter

(C 19, L 13-15; *"weighting factors"*) and performing at least one duplication of the

experiment data.

Regarding claim 31:

Wang et al. teaches

The method wherein the optimizer includes at least one core module and one module for

selecting new test points (C 32, L 25-29, "*new experimental basket*").

Regarding claim 32:

Wang et al. teaches

The method wherein the processing at the optimizer is influenced based on processing at

the module for selecting new test points (C 32, L 25-29, "*new experimental basket*").

Regarding claim 33:

Wang et al. teaches

The method wherein the processing at the module for selecting new test points is

influenced by at least one of a value exceeding a threshold (C 32, L 51-53; "*pass the*

acceptance threshold") and a predefined user value.

Regarding claim 34:

Wang et al. teaches

The method wherein the processing at the optimizer is influenced based on processing at

the core module.

The examiner takes the position that although Wang et al. does not explicitly recite the

use of a "core module", the operations performed by this module as disclosed in the

applicants' specification in Paragraph 0048 are inherent in the optimization process (C

32, L 5-42).

Regarding claim 35:

Wang et al. teaches

> The method wherein processing at the core module is influenced by at least one of a
>
> value exceeding a threshold (C 32, L 51-53; "*pass the acceptance threshold*") and a
>
> predefined user value.

Regarding claim 36:

Wang et al. teaches

> A system for designing experiments (C 1, L 21-22; "*methods and apparatus for*
>
> *designing and preparing experiments*") comprising:
>
>> a optimizer for selecting (C 4, L 46-54; "*providing*") at least one first experiment
>>
>> (C 4, L 54-56; "*set of experiments*") from an experimental space (C 4, L 54-56; "*a*
>>
>> *parameter space*"); and
>>
>> a meta layer module coupled to the optimizer (C 6, L 16-18; "*optimization*
>>
>> *process*") for evaluating experiment data determined experimentally for the first
>>
>> experiment, wherein the meta layer module generates experiment design data for
>>
>> influencing processing at the optimizer.
>
> The examiner takes the position that the "configurations" serves as both an experimental
>
> spaces and the result of evaluations. The optimization process (C 6, L 16-18;
>
> "*optimization process*") generates a new experimental space (C 6, L 25-34; "*second*

configurations") after processing (C 6, L 14-16;*"performing an optimization process"*)

previous experimental spaces (C 6, L 25-34; *"preceding configuration"*).

Additionally, the examiner takes the position that the operations performed by the

optimizer and the meta layer module, of applicants' claimed invention are facilitated the

optimization process (C 6, L 16-18; *"optimization process"*) of the invention of Wang et

al.

The applicants' specification discloses that the meta layer module is a method of tuning

the optimizer in Paragraph 0017, whereas the invention of Wang et al. teaches the

optimization process (C 6, L 16-18; *"optimization process"*) making use of target points

(C 6, L 1-3; *"target points"*) and figures of merit (C 5, L 62-65; *"figure of merit"*). The

examiner asserts that by making use of targets points and figures of merit, the

optimization process taught by Wang et al. is self tuning, and therefore anticipates the

meta layer module and the optimizer of applicants' claimed invention.

Regarding claim 37:

Wang et al. teaches

The system wherein the meta layer module (C 6, L 16-18; *"optimization process"*)

includes at least one of a neural network module, a hybrid model module, a rigorous

model module and a data mining module (C 6, L 25-34).

The examiner takes the position that data mining is inherent in the process of

optimization (C 6, L 25-34).

Regarding claim 38:

Wang et al. teaches

The system of claim 36, where the meta layer module includes a filtering module for

filtering the experiment data (C 10, L 53-61; *"properties the can be screened"*).

Regarding claim 39:

Wang et al. teaches

The system wherein the filtering module is operable to re-evaluate the experiment data (C

32, L *"repeat steps 930 to 955"*).

Regarding claim 40:

Wang et al. teaches

The system wherein the filtering module is operable to perform at least one of weighting

(C 19, L 13-15; *"weighting"*) and pre-selecting the experiment data.

Regarding claim 41:

Wang et al. teaches

The system wherein the optimizer includes at least one core module and a module for

selecting new test points (C 32, L 25-29, *"new experimental basket"*).

Regarding claim 42:

Wang et al. teaches

The system wherein the meta layer module is operable to influence the module for

selecting new test points (C 32, L 25-29, *"new experimental basket"*).

Regarding claim 43:

Wang et al. teaches

The system wherein the meta layer module is operable to influence the core module.

The examiner takes the position that although Wang et al. does not explicitly recite the

use of a "core module", the operations performed by this module are disclosed in the

applicants' specification in Paragraph 0048 are inherent in the optimization process (C

32, L 5-42).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Cawse (USPN 6,684,161) is cited for his combinatorial experiment design method and system.

Cawse et al. (USPN 6,826,487) is cited for his method for defining an experimental space and

method and system for conducting combinatorial high throughput screening of mixtures. Cawse

(USPN 6,728,614) is cited for his method and system for selecting a best case set of factors for a

chemical reaction. Perry (SUPN 6,516,313) is cited for a method of dynamic constraint handling

in vertex base optimization of a continuous complex system. Perry (USPN 6,763,276) is cited

for a method for optimizing a continuous complex system using a set of vertices and dynamic

hierarchical constraints. Flavin et al. (USPN 6,175,816; USPN 6,044,212) is cited for the use of

an automated technology in chemical process research and development. Scarrah (USPN

6,144,885) is cited for his method for the interactive improvement of manufacturing processes.
Falcioni et al. (SUPN 6,983,233) is cited for his combinatorial parameter space experiment
design. Stewart (USPN 6,604,092) is cited for his expert system utilizing a knowledge base and
design of experiment techniques. Selliers (USPN 6,144,897) is cited for his control method for
process of synthesis of chemical products. Lorenzen et al. (USPN 5,253,331) is cited for his
expert system for statistical design of experiments.

Any inquiry concerning this communication or earlier communications from the examiner
should be directed to Adrian L. Kennedy whose telephone number is (571) 270-1505. The
examiner can normally be reached on Mon -Fri 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,
Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization
where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application
Information Retrieval (PAIR) system. Status information for published applications may be
obtained from either Private PAIR or Public PAIR. Status information for unpublished
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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ALK

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